CLAIMS

1. A composition comprising an effective amount of the HMGB1 protein or functional parts thereof, or HMGB1 expressing vectors, for the treatment of tissue damage and/or to promote tissue repair and regeneration.

2. Composition according to claim 1 wherein the tissue regeneration depends from the growth of cells of the same type as those damaged, excluding connective tissue.

3. Composition according to claim 2 wherein the tissue is cardiac or skeletal muscle.

4. Composition according to claim 3 wherein the tissue repair and/or regeneration includes the repair and/or regeneration of areas of necrosis.

5. Composition according to claim 4 wherein the areas of necrosis comprise trauma sites, ischemia sites including infarcted heart, burn sites.

6. Composition according to any of previous claims further comprising an effective amount of an anti-inflammation agent.

7. Composition according to any of previous claims further comprising diluents and/or adjuvants for perfusion at the tissue repair site.

8. Composition according to any of previous claims further comprising diluents and/or adjuvants and/or carriers for intramuscular injection.

9. Composition according to any of previous claims further associated to stem cells.

10. Composition according to claim 9 wheren said stem cells are mesoangioblasts.

11. A composition comprising an effective amount of an antagonist of the HMGB1

protein for the treatment of adverse effects induced by necrotic tissue, such as activation of nearby surving cells, the recruitment and activation of myeloid cells, loss of the barrier function of endothelia, edema.

12. Composition according to claim 11 wherein the necrotic tissue refers to intestinal infarction, acute pancreatitis and extensive trauma.

13. Composition according to claim 12 wherein the adverse effects induced by necrotic tissue include long term effects of necrosis, such as sepsis and multiple organ failure.

14. Composition according to claims 11 to 13 wherein the HMGB1 antagonist comprises HMGB1 antibodies and functional recombinant or synthetic portions thereof, interference RNAs, antisense RNAs, synthetic or natural modulators.

15. Composition according to claim 11 to 14 wherein the composition is administered within 16 hours of the necrotic event.

16. Method to promote stem cell migration and/or proliferation in cell culture or in vivo comprising the step of exposing such cells to an effective amount of the HMGB1 protein or functional parts thereof.

17. Method according to claim 16 wherein said stem cells are resident cardiac or circulating stem cells.

18. Method to promote the proliferation of cardiomyocites in cell culture or in vivo comprising the step of exposing such cells to an effective amount of the HMGB1 protein or functional parts thereof.